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REMARKS

Claims 1-39 are pending in this application. Applicants have hereinabove amended claims 1-15, 17-31 and 37-39 and added new claim 40-49. Thus, claims 1-49 are currently under examination in the subject application.

Support for new claim 40-49 may be found, *inter alia*, in Example 1 and corresponding Figures of the subject application.

Rejoinder of claims 7 and 21

On page 2 of the November 26, 2001 Office Action, the Examiner stated that claims 7 and 21 have been rejoined with the claims under examination.

New claim 31 has also been added to the group of claims under examination.

However, the Examiner alleged that new claims 32-39 added by applicants' September 18, 2001 Amendment are directed to an invention that is independent of distinct from the invention elected for prosecution, and, thus, claims 32-39 have been withdrawn from consideration.

Request to Examine Withdrawn Claims Pursuant to M.P.E.P. 809.02

On page 2 of the November 26, 2001 Office Action, the Examiner justified withdrawing claims from examination on the ground that applicants have received an action of the merits for the originally elected invention, and, thus, only that invention has been constructively elected for prosecution on the merits, citing 37 C.F.R. § 1.142(b) and M.P.E.P. § 821.03.

In response, to clarify the record, applicants have elected a species for examination purposes. This was acknowledged by the

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Examiner in the March 23, 2001 Office Action. However, applicants fully expect to have all of the claimed species considered should the generic claims be found allowable, pursuant to M.P.E.P. 809.02. Thus, applicants have not canceled claims directed to the non-elected species, and in fact added additional dependent claims drawn to the non-elected species. On page 3 of the March 23, 2001 Office Action, the Examiner has acknowledged applicants' right to have claims drawn to any non-elected species examined once a generic claim is found allowable. For reasons which follow, applicants believe that this Amendment has placed generic claims in condition for allowance. Accordingly, applicants request examination of all claims dependent on the allowable generic claims.

Rejection under 35 U.S.C. § 112, second paragraph

On page 3 of the November 26, 2001 Office Action, the Examiner rejected claims 1, 2 and 30 under 35 U.S.C. 112, second paragraph, as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In response, to expedite prosecution of the subject application, but without relinquishing their right to claim or otherwise pursue patent coverage for the canceled or deleted subject matter, applicants have amended claims 1, 2 and 30 to more clearly define the invention.

Rejection under 35 U.S.C. § 102 - Krizek et al.

On page 3 of the November 26, 2001 Office Action, the Examiner rejected claims 1-2, 6, 7, 12, 14-16, 20, 21, 26 and 28-31 under 35 U.S.C. 102(b) as allegedly anticipated by Krizek et al. for reasons as stated in the last Office Action.

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In response, to expedite prosecution of the subject application, but without relinquishing their right to claim or otherwise pursue patent coverage for the canceled or deleted subject matter, applicants have amended claims 1, 15, and 30 to recite that the polypeptide A or B, when expressed in a plant that expresses only one of A or B, is not an active enzyme, is not a regulatory protein and is not a protein which affects the functionality and/or viability and/or the structural integrity of a cell, but when expressed in a plant that expresses both A and B forms an active enzyme, a regulatory protein, or a protein which affects the structural integrity of a plant cell.

Krizek et al., on the other hand, describe plants expressing AP3 and plants expressing PI genes. The expression products of AP3 and PI are transcription factors. There is no disclosure in the application that the AP3 and PI proteins do not form regulatory proteins when expressed in separate plants. There is no disclosure within Krizek et al., of proteins or polypeptides which when expressed in separate plants are inactive enzymes or non-regulatory proteins but when expressed in the same plant form an active enzyme or regulatory protein.

In view of the foregoing, the rejection under 35 U.S.C. § 102 based on Krizek et al. should be reconsidered and withdrawn.

Rejections under 35 U.S.C. § 102 - DuPont / Nickerson

On page 4 of the November 26, 2001 Office Action, the Examiner rejected claims 1-2, 9, 14-16, 23, and 28-31 under 35 U.S.C. 102(b) as allegedly anticipated by WO 91/09957 (DUPONT), and also as allegedly anticipated by WO 95/20668 (NICKERSON), for reasons as stated in the previous Office Action.

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In response, applicants understand that the rejection over DuPont and Nickerson have been maintained for the same reasons as the rejection over Krizek et al., i.e. the Examiner's interpretation of the claims. Thus, applicants clarification of the claims is believed to overcome the rejections based on DuPont and Nickerson for similars reasons to those discussed with respect to Krizek et al. above.

Accordingly, the rejections under 35 U.S.C. § 102 based on WO91/09957 (DUPONT) and WO 95/20668 (NICKERSON) should also be reconsidered and withdrawn.

Rejections under 35 U.S.C. § 103 - Krizek et al./DuPont/Nickerson

On page 4 of the November 26, 2001 Office Action, the Examiner rejected claims 1-2, 5-9, 14-16, 23, and 28-31 under 35 U.S.C. 103(a) as allegedly unpatentable over Krizek et al., or over WO 91/09957 (DUPONT), or over WO 95/20668 (NICKERSON), for the reasons as stated in the previous Office Action.

In response, as noted above with respect to the rejection under 35 U.S.C. § 102, applicants respectfully point out that the amended claims recite subject matter that is not taught by any of Krizek et al., DuPont or Nickerson. The subject matter is also not suggested by any one of Krizek et al., DuPont or Nickerson for the reasons set forth in applicants' previous response dated August 23, 2001.

Accordingly, applicants respectfully request that the Examiner reconsider and withdraw the rejections under 35 U.S.C. § 103 based on Krizek et al., DuPont or Nickerson.

Rejection under 35 U.S.C. § 103 - ALKO GROUP, OY ALKO & Hiatt

On pages 11-14 of the March 23, 2001 Office Action, the Examiner

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rejected claims 1-2, 5-6, 8-9, 12-16, 19-20, 22-23 and 26-31 under 35 U.S.C. 103(a) as allegedly unpatentable over WO 96/00789 (ALKO GROUP) taken with WO 93/17093 (OY ALKO AB) and Hiatt et al (1989) for the reasons set forth in the previous Office Action.

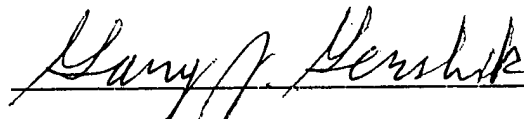
In response, applicants respectfully point out that amended claims 1-2, 5-6, 8-9, 12-16, 19-20, 22-23 and 26-31 recite subject matter that is not taught or suggested by any of ALKO GROUP, OY ALKO AB or Hiatt et al., alone or in combination, for the reasons discussed in applicants' August 23, 2001 response.

In view of the amendments and remarks hereinabove, applicants maintain that none of the cited references, alone or in combination, teach or suggest applicants' claimed invention. Accordingly, applicants respectfully request that the Examiner reconsider and withdraw the rejections and objection set forth in the November 26, 2001 Office Action and earnestly solicit allowance of all pending claims.

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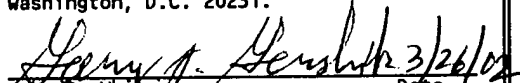
No fee, other than the enclosed \$110.00 fee for a one-month extension of time, is deemed necessary in connection with the filing of this Amendment. However, if any additional fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 03-3125.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited this date with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

 3/26/02
John P. White Date
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Attachment A

(Marked-up Claims to show amendments)

1. (Twice Amended) A pair of parent plants for producing seeds comprising:

(i) a first parent plant containing one or more gene sequences encoding a polypeptide ~~or protein~~ A, and

(ii) a second parent plant containing one or more gene sequences encoding a polypeptide ~~or protein~~ B;

wherein ~~the polypeptides and/or proteins A, B~~ each of A and B, when expressed in ~~separate plants, do not form a plant that~~ expresses only one of A or B, is not an active enzyme, is not a regulatory protein ~~or~~ and is not a protein which affects the functionality and/or viability and/or the structural integrity of a cell, but when expressed in ~~the same~~ a plant that expresses both A and B, ~~do form~~ A and B form an active enzyme, or a regulatory protein, or a protein which affects the structural integrity of a plant cell.

2. (Twice Amended) A pair of plants as claimed in claim 1, wherein the one or more gene sequences from at least one of the plants is ~~transgenic~~ a transgene.

3. (Amended) A The pair of plants as claimed in claim 1, wherein the polypeptides ~~or proteins~~ A and B, when expressed in the same plant, cause cell ablation ~~especially male sterility or embryoless seeds~~.

4. (Amended) A The pair of parent plants as claimed in claim 1, wherein one of the parent plants is male-sterile.

5. (Amended) A The pair of plants as claimed in claim 2, wherein the one or more gene sequences encoding ~~both or one of the~~ polypeptides ~~or proteins~~ A or B, is operatively linked to a tissue specific promoter.

6. (Amended) A The pair of plants as claimed in claim 1, wherein the polypeptides A and B are naturally occurring subunits of ~~the~~ a protein complex of an active enzyme, regulatory protein, or protein which affects the structural integrity of a cell.

7. (Twice Amended) A The pair of plants as claimed in claim 1 wherein the polypeptides A and B are two polypeptide subunits of an enzyme having RNase activity such as the enzyme Barnase or RNase A or the monomers of the protein complex of ~~the Apetala-3-pistillata~~ Apetala3-pistillata.

8. (Amended) A The pair of plants as claimed in claim 1, wherein the polypeptides A and B are artificially split polypeptides of an active enzyme, regulatory protein or protein which affects the structural integrity of a cell.

9. (Amended) A The pair of plants as claimed in claim 1, wherein each parent plant is homozygous with respect to the one or more gene sequences encoding polypeptide A or B respectively.

10. (Amended) A The pair of plants as claimed in claim 3, wherein the cause of male-sterility is direct or indirect.

11. (Amended) A The pair of plants as claimed in claim 5, wherein the tissue-specific promoter is a tapetum-specific promoter, an embryo-specific promoter or a seed specific promoter.

12. (Amended) A The pair of plants as claimed in claim 1, wherein one or both of the polypeptides ~~or proteins~~ is fused to a carrier protein ~~and/or~~ or a protein targeting signal.

13. (Amended) A The pair of plants as claimed in claim 1, wherein each polypeptide ~~or protein~~ A and B is linked to a protein dimerization domain of a dimeric or multimeric protein that promotes association between ~~polypeptides or proteins~~ A and B.

14. (Amended) A The pair of plants as claimed in claim 1, wherein the one or more gene sequences from at least one of the parent plants is a heterologous gene sequence.

15. (Twice Amended) A method for producing a plant having a desired phenotype by virtue of an active enzyme, a regulatory protein or a protein which affects the structural integrity of a cell, the method comprising crossing a first plant with a second plant wherein the first plant contains one or more gene sequences encoding a polypeptide ~~or protein~~ A but which plant does not have the desired phenotype and wherein the second plant contains one or more gene sequences encoding a polypeptide ~~or protein~~ B but which plant does not have the desired phenotype, wherein ~~the polypeptides and/or proteins A, B~~ each of A and B, when expressed in ~~separate plants, do not form a plant that expresses only one of A or B~~, is not an active enzyme, is not a regulatory protein ~~or~~ and is not a protein which affects the functionality and/or viability and/or the structural integrity of a cell, but when expressed in ~~the same~~ a plant that expresses both A and B, ~~do form~~ A and B form an active enzyme, a regulatory protein, or a protein which affects the structural integrity of a plant cell.

16. The method of claim 15, wherein the one or more gene

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sequences from at least one of the first and the second plant is a transgene.

17. (Amended) A The method as claimed in claim 15, wherein the desired phenotype is cell ablation. ~~especially male-sterility or embryoless seeds.~~

18. (Amended) A The method as claimed in claim 15, wherein one of the ~~lines~~ first plant or the second plant is male-sterile.

19. (Amended) A The method as claimed in claim 15, wherein the one or more gene sequences encoding ~~polypeptides or protein A and/or~~ or B is operatively linked to a tissue-specific promoter.

20. (Amended) A The method as claimed in claim 15, wherein the polypeptides ~~or proteins~~ A and B are naturally occurring subunits of an active enzyme, regulatory protein or protein which affects the structural integrity of a cell.

21. (Twice Amended) A The method as claimed in claim 15 wherein the polypeptides ~~or proteins~~ A and B are two polypeptide subunits of an enzyme having RNase activity such as the enzyme Barnase, RNase A or the subunits of the protein ~~Apetale 3-pistillata~~ Apetala3-pistillata.

22. (Amended) A The method as claimed in claim 15, wherein the polypeptides ~~or proteins~~ A and B are artificially split polypeptides of an active enzyme, regulatory protein or protein which affects the structural integrity of a cell.

23. (Amended) A The method as claimed in claim 15, wherein each of the first and second plants is homozygous with respect to the gene sequence encoding polypeptide ~~or protein~~ A or B,

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respectively.

24. (Amended) A The method as claimed in claim 15, wherein the desired phenotypic trait is direct or indirect male-sterility.

25. (Amended) A The method as claimed in claim 15, wherein the tissue-specific promoter is a tapetum-specific promoter, an embryo-specific promoter or a seed specific promoter.

26. (Amended) A The method as claimed in claim 15, wherein one or both of the polypeptides ~~or proteins~~ A and B is fused to a carrier protein ~~and/or~~ or protein targeting signal.

27. (Amended) A The method as claimed in claim 15, wherein each polypeptide ~~or protein~~ A and B is linked to a different protein dimerisation domain of a dimeric or multimeric protein.

28. (Amended) A The method as claimed in claim 15, wherein at least one of the first or second plants contains, as the one or more gene sequences, heterologous gene sequences.

29. (Amended) A seed obtained by crossing the pair of plants of claim 1, or a plant obtained from the seed, wherein the seed comprises the one or more gene sequences encoding polypeptide A and the one or more gene sequences encoding polypeptide B.

30. (Twice Amended) A seed or plant, having a phenotype by virtue of an active enzyme, a regulatory protein or a protein which affects the structural integrity of a cell, which is caused by the combined action of two or more transgenes, comprising a first transgene encoding a polypeptide ~~or protein~~ A and a second transgene encoding a polypeptide ~~or protein~~ B wherein the ~~polypeptides A and B~~ each of A and B, when expressed in ~~separate~~

~~plants, do not form a plant that expresses only one of A or B,~~
is not an active enzyme, is not a regulatory protein ~~or~~ and is
not a protein which affects the functionality and/or viability
and/or the structural integrity of a cell, but when expressed in
~~the same~~ a plant that expresses both A and B, A and B form an
active enzyme, a regulatory protein, or a protein which affects
the structural integrity of a plant cell.

31. (Amended) A seed or progeny plant obtained from the plant of
claim 29, wherein the seed or progeny plant comprises at least
one of the one or more gene sequences encoding polypeptides A or
B.

32. The pair of plants as claimed in claim 3, wherein the cell
ablation causes male-sterility.

33. The pair of plants as claimed in claim 3, wherein the cell
ablation causes embryoless seeds.

34. The method as claimed in claim 17, wherein the cell ablation
causes male sterility.

35. The method as claimed in claim 17, wherein the cell ablation
causes embryoless seeds.

36. The plant as claimed in claim 29 which is male sterile.

37. (Amended) A seed or progeny plant obtained from the male
sterile plant of claim 36, wherein the seed or progeny plant
comprises at least one of the one or more gene sequences encoding
polypeptides A or B.

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38. (Amended) The seed or plant as claimed in claim 30, wherein the phenotype of the ~~active-enzyme~~ plant is male sterility.

39. (Amended) A seed or progeny plant obtained from the male sterile plant of claim 38, wherein the seed or progeny plant comprises at least one of the one or more gene sequences encoding polypeptides A or B.

40. (New) A pair of parent plants for producing seeds comprising:

(i) a first parent plant containing a gene sequence encoding a polypeptide A* comprising a methionine codon followed by amino acids 1 to 35 or 1 to 36 of mature Barnase; and

(ii) a second parent plant containing a gene sequence encoding a polypeptide B* comprising a methionine codon followed by amino acids 37 to 110 of mature Barnase,

wherein each of A* and B*, when expressed in a plant that expresses only one of A* or B*, is not an active RNase enzyme, but when expressed in a plant that expresses both A* and B*, A* and B* form an active RNase enzyme.

41. (New) The pair of parent plants of claim 40 wherein one or both of the polypeptides A* or B* is fused to a carrier protein or a protein targeting signal.

42. (New) The pair of parent plants of claim 41 wherein said carrier protein or protein targeting signal is GUS.

43. (New) A method of producing a male sterile plant by virtue of an active RNase enzyme the method comprising crossing

(i) a first parent plant containing a gene sequence encoding a polypeptide A* comprising a methionine codon followed by amino acids 1 to 35 or 1 to 36 of mature Barnase with

(ii) a second parent plant containing a gene sequence encoding a polypeptide B* comprising a methionine codon followed by amino acids 37 to 110 of mature Barnase,

wherein each of A* and B*, when expressed in a plant that expresses only one of A* or B*, is not an active RNase enzyme, but when expressed in a plant that expresses both A* and B*, A* and B* form an active RNase enzyme.

44. (New) The method of claim 43 wherein one or both of the polypeptides A* or B* is fused to a carrier protein or a protein targeting signal.

45. (New) The method according to claim 44 wherein said carrier protein or protein targeting signal is GUS.

46. (New) A seed or plant obtained by a process comprising crossing the pair of parent plants as claimed in claim 40 wherein said seed or plant contains at least one of said one or more gene sequence encoding polypeptides A* or B*.

47. (New) The seed or plant of claim 46, said seed or plant having a phenotype by virtue of an active enzyme, a regulatory protein or a protein which affects the structural integrity of a cell, which phenotype is caused by the combined action of two or more transgenes that are not present on the same copy of a

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chromosome.

48. (New) The seed or plant obtained from the progeny plant produced by the method as claimed in claim 43 wherein said seed or plant contains at least one of said one or more gene sequence encoding polypeptides A* or B*.

49. (New) The seed obtained from the plant of claim 46 or 48.